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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/584,330	05/30/2000	Brain Unitt	476-1921	1746

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EXAMINER
LI, SHI K

ART UNIT	PAPER NUMBER
2633	

DATE MAILED: 05/13/2004 9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/584,330	UNITT ET AL.	
	Examiner	Art Unit	
	Shi K. Li	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 March 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,8-10,12 and 14-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,8-10,12 and 14-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 5, 19-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 5 depends on claim 1. While claim 1 recites the limitation "no optical connectivity from each of said stations back to itself" in line 5 of the claim, claim 5 recites the limitation "the passive optical network provides optical connectivity from each of said stations back to itself" in lines1-2 of the claim. These two limitations contradict themselves.

4. Claim 19 recites the limitation "A passive optical network arrangement according to claim 7" in line 1 of the claim. Since claim 7 has been cancelled, there is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1-6, 8-10, 12, 14 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Darcie et al. (U.S. Patent 6,493,335 B1) in view of Ota (U.S. Patent 5,282,257) and Ota (U.S. Patent 5,915,054).

Regarding claims 1 and 6, Darcie et al. discloses in FIG. 14B a passive optical network (PON). FIG. 14B comprises a head-end station (CO) 10, a plurality of subscriber stations EU20

(only one is shown in the diagram) and passive optical splitters 15a and 15b for providing connectivity for the stations. FIG. 14B also shows a common optical wavelength λ_1 for subscribers to send upstream data. Each station comprises receiver (RCV) for detecting when another subscriber station is transmitting. The subscribers receive broadcast data on λ_2. The difference between Darcie et al. and the claimed invention is that the loop back arrangement of Darcie et al. provides connectivity from each subscriber back to itself. Ota '054 teaches in col. 3, lines 4-21 that by using a coupler such that a signal transmitted from a node will never return to the node, collision detection can be simplified such that if a signal is detected at the receiving port it is determined that a collision has occurred. Ota '054 cites Ota '257 (U.S. Patent Application 07/813,443) for such a coupler. One of ordinary skill in the art would have been motivated to combine the teachings of Ota with the access network of Darcie et al. because the coupler of Ota '257 simplifies the collision detection circuit and makes the detection reliable. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a coupler that provides no optical connectivity from an input port to its corresponding output port and use a simple light detector for collision detection, as taught by Ota, in the access network of Darcie et al. because the coupler of Ota '257 simplifies the collision detection circuit and makes the detection reliable.

Regarding claims 2-3, Darcie et al. explains in col. 2, line 54-col. 3, line 12 that the network deploys carrier sense/collision detection (CSMA) and Ethernet protocol.

Regarding claim 4, Darcie et al. explains in col. 16, lines 11-19 that the network operates at bit rates of the order of 1Gbit/s.

Regarding claim 5, the PON of Darcie et al. loops back λ_1.

Regarding claims 10, 14 and 17-18, Ota '054 teaches in col. 3, lines 20-22 that if a signal is detected it is determined that a collision has occurred. That is, a simple light detector can replace the RCV for λ_1 in FIG. 14B of Darcie et al.

Regarding claims 8-9 and 16, FIG. 14B of Darcie et al. is a telecommunications access network.

Regarding claim 12, in FIG. 14B of Darcie, EU20 receives both λ_1 and λ_2 at a common input port and includes splitter to split λ_1 and λ_2.

7. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Darcie et al., Ota '335 and Ota '257 as applied to claims 1-6, 8-10, 12, 14 and 16-18 above, and further in view of Kavehrad et al. (U.S. Patent 4,701,909).

Darcie et al., Ota '335 and Ota '257 have been discussed above in regard to claims 1-6, 8-10, 12, 14 and 16-18. The difference between Darcie et al., Ota '335 and Ota '257 and the claimed invention is that Darcie et al., Ota '335 and Ota '257 do not teach the use of PIN diode for light detection. It is well known in the art that PIN diode and Avalanche photodiode (APD) are commonly used as photodetectors for detecting light signals. For example, Kavehrad et al. teaches in FIG. 1 and col. 8, line 24 a collision detection circuit using APD or PIN diode. One of ordinary skill in the art would have been motivated to combine the teaching of Kavehrad et al. with the modified access network of Darcie et al., Ota '335 and Ota '257 and use a PIN diode as a light detector because PIN diode is fast and inexpensive. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use PIN diode as light detector, as taught by Kavehrad et al., in the modified access network of Darcie et al., Ota '335 and Ota '257 because PIN diode is fast and inexpensive.

8. Claims 19-20, with the assumption that claim 19 depends on claim 1, are rejected under 35 U.S.C. 103(a) as being unpatentable over Darcie et al., Ota '335 and Ota '257 as applied to claims 1-6, 8-10, 12, 14 and 16-18 above, and further in view of Coden et al. (U.S. Patent 5,109,448).

Darcie et al., Ota '335 and Ota '257 have been discussed above in regard to claims 1-6, 8-10, 12, 14 and 16-18. The difference between Darcie et al., Ota '335 and Ota '257 and the claimed invention is in the structure of the passive coupler. Coden et al. discloses in FIG. 2 a passive coupler that has the feature of the instant claims. One of ordinary skill in the art would have been motivated to combine the teaching of Coden et al. with the modified access network of Darcie et al., Ota '335 and Ota '257 because the coupler of Coden et al. has the same feature of Ota that there is no optical connectivity from an input port to its corresponding output port and is much simpler in design and manufacturing. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the passive coupler of Coden et al. in the modified access network of Darcie et al., Ota '335 and Ota '257 because the coupler of Coden et al. is simple in design and manufacturing.

Response to Arguments

9. Applicant's arguments filed 1 March 2004 have been fully considered but they are not persuasive.

10. The Applicant argues that there is no suggestion in Darcie to modify its teaching in this manner. However, Ota '054 clearly states in col. 2, line 25-col. 3, line 21 problems associated with detection of collision and suggests that the coupler of Ota '257 would make the collision detection simple and reliable. Since Darcie uses collision detection, the teaching of Ota is

applicable. Therefore one of ordinary skill in the art would have been motivated to combine the teaching of Ota with the passive optical network of Darcie and achieve the advantages claimed by Ota.

11. In response to applicant's argument that the examiner has combined an excessive number of references, reliance on a large number of references in a rejection does not, without more, weigh against the obviousness of the claimed invention. See *In re Gorman*, 933 F.2d 982, 18 USPQ2d 1885 (Fed. Cir. 1991).

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Reedy et al. (J. Reedy, "Methods of Collision Detection in Fiber Optic CSMA/CD Networks", IEEE Journal on Selected Areas in Communications, Vol. SAC-3, No. 6, November 1985) lists seven (7) methods for collision detection including directional coupling, hybrid star and active star.

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 703 305-4341. The examiner can normally be reached on Monday-Friday (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 703 305-4729. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

skl

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